

## TRICHOPTERA OF NEW ZEALAND

## II. The present status of R. J. Tillyard's species of New Zealand Trichoptera, with notes on the type specimens.

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*Abstract.* Type specimens, from New Zealand and Chatham Islands, of species described by R. J. Tillyard, are identified, recorded, and redescribed when necessary. *Helicopsyche howesi* Till. is confirmed as a separate species; the genus *Triplectidina* Mosely is redescribed on the basis of characters of the type species, *T. oreolimnetes* (Till.); two forms are recognised in the ♂ genitalia of *Dolophilodes* (*Hydrobiosella*) *stenocerca* (Till.); *Hydrobiosis lindsayi* Till. is re-established as a valid species; and *Synchorema zelandica* Mosely is synonymised with *S. zygoneura* Till.

Dr. R. J. Tillyard published two papers on the Trichoptera of New Zealand (1921, 1924) and one on the Chatham Islands fauna (1925). Species which he described in these papers are listed here in their correct taxonomic category, according to present-day knowledge. The type specimens are listed as designated by Tillyard, followed by the collecting data from labels on the specimens. Additional notes are given where required. Specimens and/or species and genera are described or discussed where necessary.

As much work as is thought worthwhile, for the present, has been carried out on Tillyard's types. It is not suggested that this paper completes the work to be done on his type specimens. As species become better known and genera are revised in the future, these specimens, particularly females, will still need to be examined.

Holotypes and allotypes were labelled as such or as 'Type' by Tillyard, but apparently he did not label paratypes. In his 1924 paper, in paragraphs headed "Types", he sometimes designated paratypes and sometimes mentioned series and specimens without designating them paratypes. Only where they are actually designated as paratypes by Tillyard, has the present author endeavoured to recognise specimens, as paratypes, in the original Cawthron Institute collection.

Specimens described by Tillyard in 1921 are in the G. V. Hudson collection, which is now in the Dominion Museum (D.M.), Wellington, N.Z.; those recorded in 1924 are all noted as being in the Cawthron Institute collection, which is now incorporated in the collections of the Entomology Division (E.D.), Department of Scientific & Industrial Research, Nelson, N.Z., but some of these specimens were apparently retained by Tillyard and, after his death, his Trichoptera collection was presented to the British Museum (Nat. Hist.) (Riley, in Preface to Mosely & Kimmins, 1953). Specimens now in the British Museum (Natural History) (B.M.N.H.), London, England, are also recorded. The three specimens Tillyard described in 1925 are in the Canterbury Museum (C.M.), Christchurch, N.Z.

## Family SERICOSTOMATIDAE

Genus PYCNOCENTRIA McLachlan, 1866

**Pycnocentria evecta** McLachlan, 1868*Pycnocentria evecta* McLachlan, 1868, *J. Linn. Soc. Lond. Zool.* 10: 199-200.*Pycnocentrodes chiltoni* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 309 (*partim*, allotype ♀).*Pycnocentrodes chiltoni* allotype ♀ (E.D.)—"Nelson, N.Z., 29.11.20, A. Philpott". Genitalia in alcohol.This ♀ specimen, which is not from the type locality of *chiltoni*, is now determined as *P. evecta* on characters of the wing venation and genitalia (see *Pycnocentrodes chiltoni* below).

Genus PYCNOCENTRODES Tillyard, 1924

**Pycnocentrodes chiltoni** Tillyard, 1924*Pycnocentrodes chiltoni* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 309.

Holotype ♂ (E.D.)—"Cass, N.Z., 6.1.20", (R. J. Tillyard holograph).

Allotype ♀ (E.D.)—not this species, see *Pycnocentria evecta* above.

3 Paratype ♂♂ recorded from Cass—1 ♂ (E.D.), "Cass, N.Z. 6.1.20" (R. J. Tillyard holograph), now recognised and labelled as paratype ♂.

3 Paratype ♀♀, 1 paratype ♂, recorded from Nelson—the 3 ♀♀ cannot be recognised in the original collection. There are 3 ♂♂ from Nelson, collected by A. Philpott in 1920, which were all placed in this species in the original Cawthron Institute collection, but all three are without abdomens. It seems pointless to choose any one of these three as a paratype.

In *Pycnocentrodes* there appears to be either a very variable species or a species complex, the species of which are not necessarily characterised by the type specimens chosen by McLachlan (*aureola* McL., 1868), Tillyard (*chiltoni* Till., 1924, *pulchella* Till., 1924) or Wise (*aeris* Wise, 1958, *unicolor* Wise, 1958). Throughout this group there are marked variations, in the males, in size, wing colour, wing pattern, venation and in the genitalia. The ♂ genitalia are different in detail from specimen to specimen while wing colour and pattern appear to range from the palest and least pronounced in *aeris* Wise to the brightest and most pronounced in *pulchella* Tillyard. The genus needs a revision based on large numbers of specimens from many different localities, and until this is done the present author is determining species on general appearance, *P. chiltoni* being separated from *aureola* (= *pulchella*) by the terms of Mosely & Kimmins' (1953) key.

Female specimens, at present recognised as *P. chiltoni* by the present author, have wing venation as figured by Mosely & Kimmins (1953) for *P. aureola*, but wing pattern and mostly silver-white dorsal hairs on the head, as on *chiltoni* males (not ginger to black dorsal hairs on the head as in *aureola*), separate them from

*aureola* females. The genitalia of ♀ specimens presumed to be *chiltoni* vary from the figure of *aureola* ♀ genitalia, by Mosely & Kimmins (1953), in having a median notch in the medial dorsal lobe, instead of a small median projection.

### ***Pycnocentroides aureola* (McLachlan, 1868)**

*Pycnocentria aureola* McLachlan, 1868, *J. Linn. Soc. Lond. Zool.* 10: 200.

*Pycnocentroides pulchella* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 310.

*Pycnocentroides pulchella* holotype ♂ (E.D.)—"Lumsden, N.Z., 13.12.19" (R. J. Tillyard holograph).

3 Paratype ♂♂ — 1 ♂ (E.D.), "Lumsden, N.Z., 13.12.19", (R. J. Tillyard holograph), now recognised and labelled as paratype ♂. 2 ♂♂ (B.M.N.H.), bearing the same data labels, have already been recognised and labelled as paratypes by the late M. E. Mosely.

Mosely & Kimmins (1953:85) mentioned a paratype of *pulchella* in the British Museum (Nat. Hist.) collections and synonymised *pulchella* with *aureola* McL.

The holotype specimen has a dorsal median pair of asymmetric pointed projections, on the ninth segment between the superior appendages, where only one is figured and described for *aureola* by Mosely & Kimmins (1953). For the time being (for the reasons given above under *P. chiltoni*), these projections on this specimen are considered to be aberrations and *pulchella* is accepted as a synonym of *aureola*.

### Genus CONFLUENS Wise, 1962

#### ***Confluens olingoides* (Tillyard, 1924)**

*Pycnocentroides olingoides* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 130.

Holotype ♂ (E.D.)—"Gouland Downs, 7 Feb. 1922, R. J. Tillyard".

Allotype ♀ (E.D.) — data as for holotype.

Paratype ♂ recorded from same locality — no such specimen in the E.D. or B.M.N.H. collections.

The genus and the two species therein have been redescribed by McFarlane (1966).

#### ***Confluens hamiltoni* (Tillyard, 1924)**

*Pycnocentroides hamiltoni* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 311.

Holotype ♂ (E.D.)—"Tokaanu, N.Z., P.27.11.19" (R. J. Tillyard holograph).

Allotype ♀ (E.D.) — data as for holotype.

Tillyard (1924) recorded the locality as "Poutu River, between Tokaanu and Lake Roto-Aira, North Island . . .".

Genus *HELICOPSYCHE* Hagen, 1866***Helicopsyche albescens* Tillyard, 1924***Helicopsyche albescens* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 312.

Holotype ♂ (E.D.) —“Purau, N.Z., 3.1.20” (R. J. Tillyard holograph).

Allotype ♀ (E.D.) — data as for holotype. This specimen is a male, so has been recognised and labelled as a paratype ♂ by the present author.

Paratype ♂♂ — 2 ♂♂ (E.D.) (1 damaged) on one pin, same data as holotype, are now recognised and labelled as paratype ♂♂. 2 ♂♂ (B.M.N.H.) “Purau Creek, Lyttelton Harbour, 3.1.1920, R.J.T.”, recognised and labelled as paratypes by Mosely.

Recorded by Tillyard (1924) from “Purau Creek, Lyttelton Harbour . . .”.

***Helicopsyche howesi* Tillyard, 1924**

(Figs. 1 - 4)

*Helicopsyche howesi* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 213.

Holotype ♂ (E.D. — “Dunedin, bred 1.1.20” (R. J. Tillyard holograph). Genitalia now in alcohol.

*Description of holotype.*

A pale species as described by Tillyard (1924), similar in appearance to *H. albescens* but larger. Venation (Fig. 1) similar to other species in genus but differing noticeably from other New Zealand species in posterior wing where fork 1 is distinctly longer than its footstalk. Genitalia, ♂ (Figs. 2, 3, 4). Segment X flattened, with an apical median incision and a reflexed upright tooth on each side. Superior appendages short, expanded distally. Inferior appendages bifid; dorsal branch with a long posterior extension, ventral branch long and straight in lateral view, basally with an internal setose projection possibly representing a third branch. Aedeagus basally with a short sharp lateral spine on each side, apically with two rounded dorsal lobes, each with a median chitinised pointed structure, and with a dorso-lateral point on each side; an elongate eversible sac which encloses a chitinous ring towards distal end.

This species is separated from other New Zealand species by the above-mentioned character of fork 1 in the posterior wing and in the form of the ♂ genitalia. The latter are apparently similar to the genitalia of *H. poutini* McFarlane, 1964, but that is a small black species.

Tribe OECONESINI Tillyard, 1921

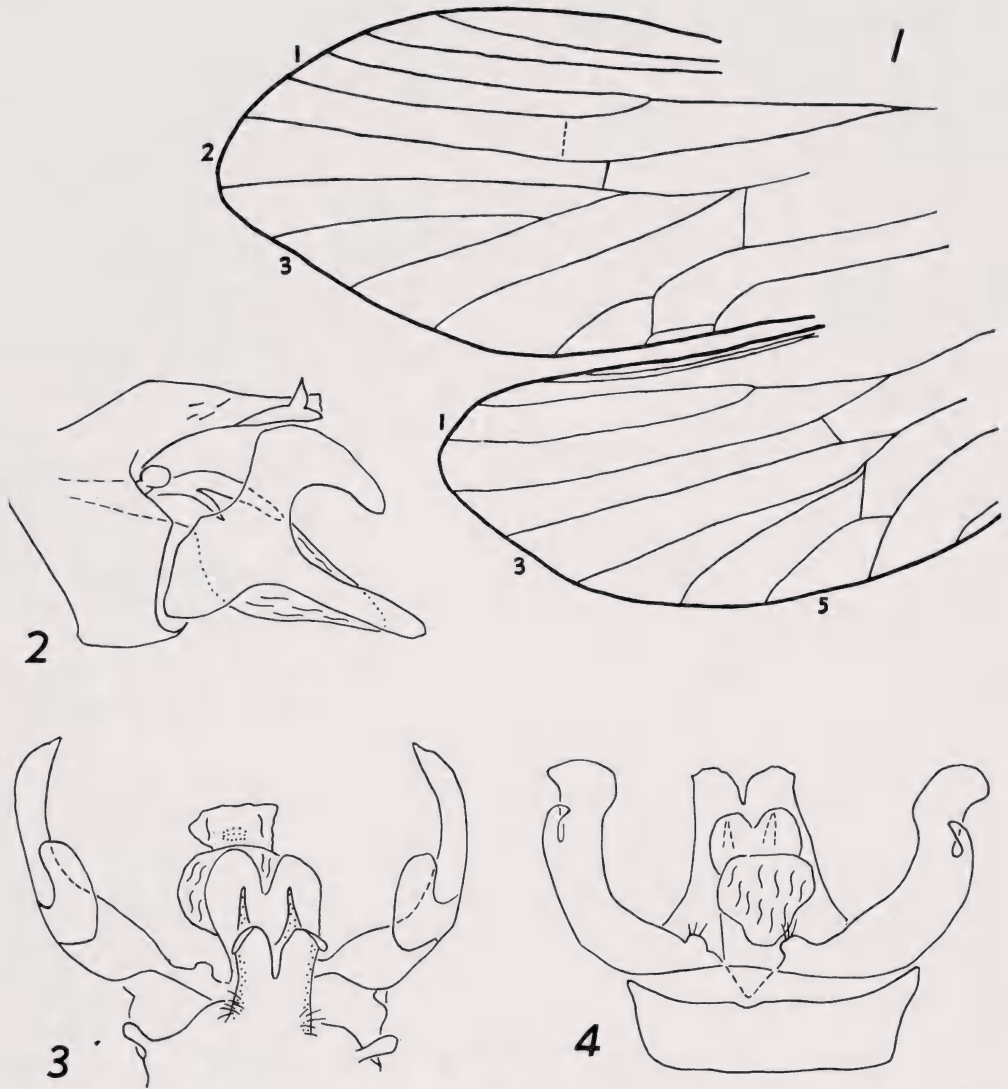
Genus ZELANDOPSYCHE Tillyard, 1921

***Zelandopsyche ingens* Tillyard, 1921***Zelandopsyche ingens* Tillyard, 1921, *Trans. N.Z. Inst.* 53: 349.

Holotype ♂ (D.M.) —“100a” (G. V. Hudson holograph). Hudson’s register reads, “100a. Captured amongst stones at the waters edge Routeburn river Lake Wakatipu close to the hut Feb. 8 &amp; 10, 1911”.

Allotype ♀ (D.M.) — label and data as for holotype.





Figs. 1-4. *Helicopsyche howesi* Till. 1. Wings. 2. ♂ genitalia, lateral. 3. ♂ genitalia, dorsal. 4. ♂ genitalia, ventral.

Family PHILANISIDAE

Genus CHATHAMIA Tillyard, 1925

***Chathamia brevipennis* Tillyard, 1925**

*Chathamia brevipennis* Tillyard, 1925, *Rec. Cant. Mus.* 2: 280 (Rhyacophilidae).

Holotype ♂ (C.M.) —“Kaingaroa 25 Dec. 1923”. Recorded by Tillyard (1925) as collected by C. Lindsay. In poor condition, head capsule and abdomen on microslide marked holotype.

*C. brevipennis* was transferred from the Rhyacophilidae to the Philanisidae by Wise (1965), and the subfamily Chathaminae, which Tillyard erected in the family Rhyacophilidae, is probably not now required as the species is obviously a derivative of the australasian *Philanisus plebeius*, the only other species in the family.

Family PHILORHEITHRIDAE

Genus PHILORHEITHRUS Hare, 1910

**Philorheithrus lacustris** Tillyard, 1924 (Figs. 5, 6)

*Philorheithrus lacustris* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 305 (Calamoceratidae).

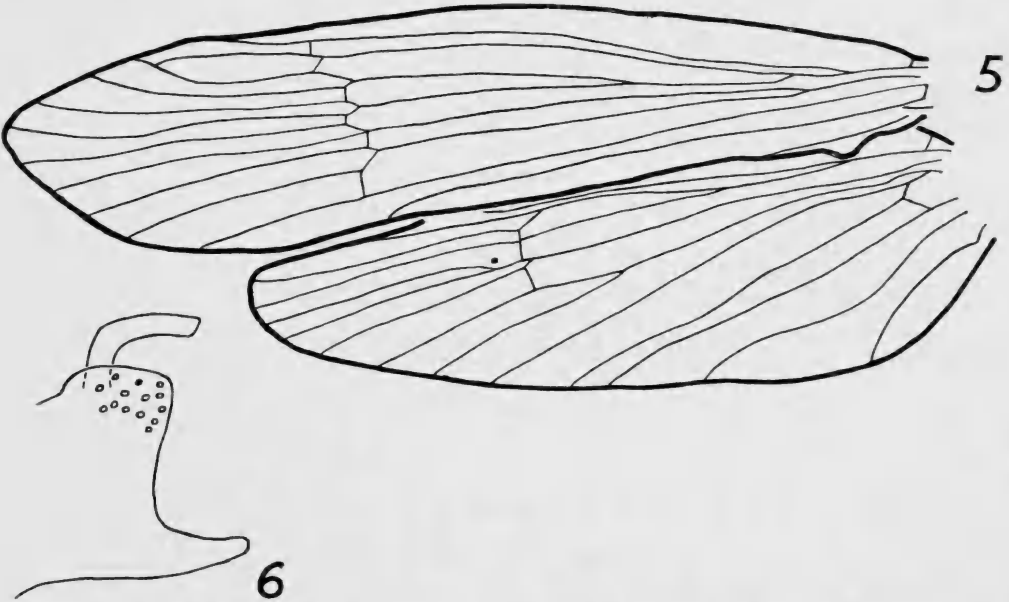
Holotype ♂ (E.D.) —“Kingston, N.Z., 13.12.19” (R. J. Tillyard holograph). Abdomen now in alcohol.

Paratype ♂♂ — there are no specimens from this type locality in the original Cawthron Institute collection. 1 ♂ (B.M.N.H.) with the same label as holotype, abdomen missing.

At the time of describing this species, Tillyard (1924) placed the genus in the family Calamoceratidae but it has since been transferred to the Philorheithridae by Mosely (1936a).

In general appearance, the holotype is as described by Tillyard (1924). Wings are as figured (Fig. 5), while Kimmins (Mosely & Kimmins, 1953) has already noted the presence of some broad hairs on the posterior wing.

The genitalia of the ♂ holotype are very similar in general appearance to those of *P. agilis* as figured by McFarlane (1966) and Mosely & Kimmins (1953).



Figs. 5, 6. *Philorheithrus lacustris* Till. 5. Wings. 6. ♂ genitalia, inferior appendage.

McFarlane (1966) has already pointed out that the figure named as *agilis* by Mosely & Kimmins (1953) is not that species and that it is similar to *locustris*. The obvious point of difference between *agilis* and *locustris* is the shape of the internal upper branch of the inferior appendage, which is straight and dilated distally in the former, but is narrow, angled posteriorly and slightly tapering (Fig. 6) in the latter.

### Family LEPTOCERIDAE

#### Genus TRIPLECTIDINA Mosely, 1936

This genus cannot be characterised as it has been in the past as the main points, used for its separation, have been in error.

Following examination of the type specimens, and others, of the type species *Triplectides oreolimnetes* Tillyard, 1924, the genus is distinguished as follows.

Anterior wing with apical forks 1 and 5 present in male (Fig. 7); 1, 3, and 5 in female. Discoidal cell longer than its footstalk; only a slightly posteriad extension of posterior distal angle, if at all; cross-vein straight or only slightly concave; posterior margin not thickened (Fig. 8). Thyridial cell present, shorter than discoidal cell in male; margins not thickened. Posterior wing (Fig. 7) with forks 1, 3, and 5 present in both sexes; fork 1 shorter than its footstalk. Genitalia, ♂, of *Triplectides* pattern, inferior appendages three-branched. Tibial spurs 2:2:4.

The anterior wing tends to fold between Rs and M, particularly between the discoidal and thyridial cells, but the fold is not permanent and the thyridial cell can be seen on wings *in situ* in some specimens. This fold has possibly given rise to the mistaken impression that parts of the veins are thickened, as was stated in the original description of the genus.

Following discovery of the thyridial cell in the forewing, the type species traces to the genus *Hudsonema* Mosely in keys by Mosely (1936b), Mosely & Kimmins (1953). However, it is considered that *Triplectidina* is a valid genus separated from *Hudsonema* and *Triplectides* by the length of the discoidal cell, in the anterior wing, which is longer than its footstalk; in the male this cell is also longer than the thyridial cell. This genus is further separated from *Hudsonema* and other genera of the subfamily (except *Triplectides*), by the character of fork 1, in the posterior wing, which is usually present and is shorter than its footstalk.

*Triplectidina nigricornis* Mosely has not been examined in the present study and it is not known if this species should still belong to the genus.

#### **Triplectidina oreolimnetes** (Tillyard, 1924)

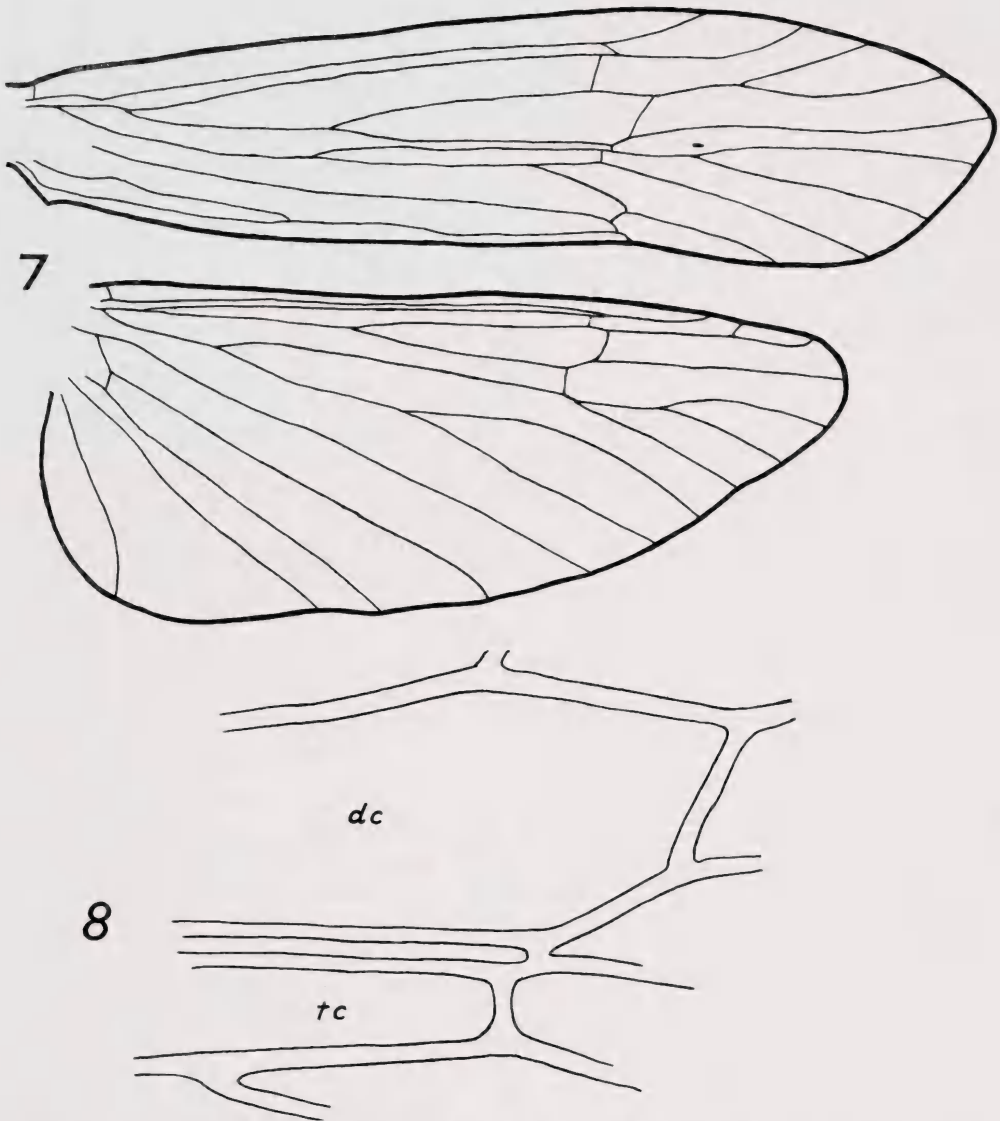
(Figs. 7, 8)

*Triplectides oreolimnetes* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 306.

Holotype ♂ (E.D.) — "Goulard Downs, 7 Feb. 1922, R. J. Tillyard". Tillyard (1924) added the altitude, "2000ft."

Allotype ♀ (E.D.) — as holotype.

7 Paratype ♂♂ — 2♂♂ (E.D.), as holotype, now recognised and labelled as paratypes. Genitalia of one paratype now in alcohol. 1♂ (B.M.N.H.) with data as holotype, previously recognised and labelled as a paratype by Mosely.



Figs. 7, 8. *Triplectidina oreolimnetes* (Till.). 7. Wings. 8. Anterior wing, detail of discoidal cell (dc)—thyrudial cell (tc) area.

This species is as described, by Tillyard (1924), in general appearance. Wing venation of males (Figs. 7, 8) is as in generic diagnosis above, not entirely as described by Mosely (1936b), Mosely & Kimmins (1953). In a few males, from one locality, fork 1 of the posterior wing is aberrantly absent, one specimen also has an aberration of fork 5, but in other respects, including genitalia, these specimens have the characters of this species. Venation of the allotype ♀ is similar to the description and figure by McFarlane (1966) except in the configuration of the discoidal cell, of the anterior wing, which is a little wider with the cross-vein longer and angled as in the male. The paratype ♂, and other specimens, have genitalia as



figured by Mosely & Kimmins (1953) except that the paratype has an aberration in the mid-dorsal processes where one is twice as long as the other. McFarlane (1966) has figured the ♀ genitalia.

Genus *OECETIS* McLachlan, 1877

***Oecetis chathamensis* Tillyard, 1925**

*Oecetis chathamensis* Tillyard, 1925, *Rec. Cant. Mus.* 2: 283.

Holotype ♂ (C.M.) —“The Ngaio, Chatham I., 24 Jan. 1924, C. Lindsay”. In poor condition, abdomen missing, one pair of wings on micro-slide marked holotype.

Family HYDROPSYCHIDAE

Genus *HYDROPSYCHE* Pictet, 1834

***Hydropsyche philpotti* Tillyard, 1924**

*Hydropsyche philpotti* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 301.

Holotype ♂ (E.D.) —“Dun Mt. 3000', 8.1.22. A. Philpott.”

3 Paratype ♂♂ — 2 specimens (E.D.) in the original Cawthron Institute collection, as holotype. Although one is without abdomen, both are recognised and labelled as paratype ♂♂ by the present author. 1 ♂ (B.M.N.H.) with data as holotype, previously recognised and labelled as a paratype by Mosely.

Wing venation much as figured, by Mosely & Kimmins (1953) for this species under the name of *Cheumatopsyche philpotti*, except that fork 1 of the anterior wing is stalked. the stalk varying in length between specimens. McFarlane (1960) recorded *Hydropsyche philpotti* mentioning the stalked fork 1, while Kimmins (1960) also corrected the generic placing, based on the wing venation.

Male genitalia are as figured and described by Mosely & Kimmins (1953) although their figures of the aedeagus show the apex somewhat flattened. McFarlane (1960) mentioned that the finger-like processes of segment X may be more or less inwardly turned, which is the case in the holotype and one paratype recorded above (E.D.).

Family PSYCHOMYIIDAE

Genus *ZELANDOPTILA* Tillyard, 1924

As described for *Zelomyia* McFarlane, 1956, which is synonymous.

***Zelandoptila moselyi* Tillyard, 1924**

*Zelandoptila moselyi* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 301 (Hydroptilidae).

Holotype ♀ (E.D.) —“Tokaanu, N.Z. 24.11.19” (R. J. Tillyard holograph). Ovipositor broken.

McFarlane recognised *Zelomyia trulla* McFarlane, 1956 (Psychomyiidae), as being conspecific with this type specimen and consequently (1964) recorded the synonymy, at the same time transferring *Zelandoptila* to the family Psychomyiidae.

Wing venation of both sexes is as figured for the male by McFarlane (1956) except that the holotype has  $R_2$  and  $R_3$  as a single vein. Genitalia are also as figured (McFarlane, 1956).

### Family PHILOPOTAMIDAE

Genus DOLOPHILODES Ulmer, 1909

Subgenus HYDROBIOSELLA Tillyard, 1924

Tillyard (1924) described *Hydrobiosella* as a genus of the family Rhyacophilidae with *H. stenocerca* Till., 1924, as the type species. Banks (1939) recorded the type species as *Philopotamus stenocerca* in the family Hydropsychidae, while McFarlane (1939) recorded *Hydrobiosella stenocerca* Till. in the family Philopotamidae, as did Mosely & Kimmins (1953). Ross (1956) reduced *Hydrobiosella* to a subgenus of *Sortosa* Navás, 1918, also recording *Dolophilodes* Ulmer, 1909, as another subgenus. However, as *Dolophilodes* predates *Sortosa*, the former should have been used as the generic name, as has since been recognised by Schmid (1964). Consequently, *Hydrobiosella* is now a subgenus of *Dolophilodes*, and the species name is as listed by Wise (1965).

### ***Dolophilodes (Hydrobiosella) stenocerca*** (Tillyard, 1924) (Figs. 9, 10)

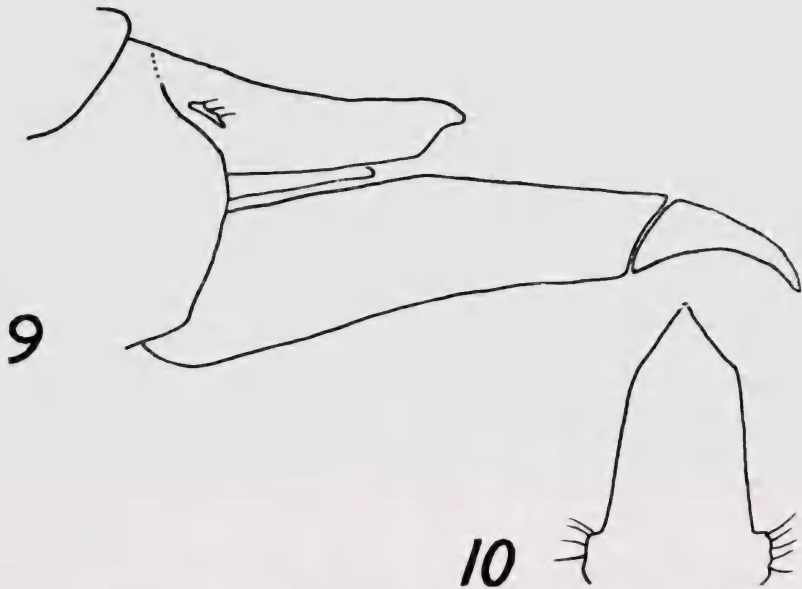
*Hydrobiosella stenocerca* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 289 (Rhyacophilidae).

Holotype ♂ (E.D.) —“Gouland Downs, 7 Feb. 1922, R. J. Tillyard”. Abdomen now in alcohol.

Allotype ♀ (E.D.) —“Nelson, N.Z., 29.12.20, A. Philpott”.

The holotype ♂ is as described by Tillyard (1924). Wing shape and venation are as figured by Mosely & Kimmins (1953). The ♂ genitalia (Figs. 9, 10) are in the same pattern as figured by Mosely & Kimmins (1953) but vary in the shape of the dorsal plate (segment X) and the distal segment of the inferior appendage. The dorsal plate tapers only slightly and has distinct angles near the apex as seen in dorsal view (as figured by Tillyard, 1924); the distal segment of the inferior appendage is strongly concave beneath, giving the segment an arched appearance in lateral view. The holotype genitalia seem to represent a South Island form of the species, while the figures by Mosely & Kimmins (1953) may represent a predominantly North Island form. The latter could almost be recognised as a separate species, but one specimen in the Cawthron Institute collection, taken near Nelson in the South Island, is either the North Island form or an intermediate between the two forms.

The ♀ genitalia, of the allotype and other South Island females, are as figured by Mosely & Kimmins (1953) except that the end of the oviscapt (segment X) has a pair of cerci.



Figs. 9, 10. *Dolophilodes* (*Hydrobiosella*) *stenocerca* (Till.). 9. ♂ genitalia, lateral.  
10. ♂ genitalia, dorsal plate.

Family RHYACOPHILIDAE

Genus HYDROBIOSIS McLachlan, 1868

**Hydrobiosis lindsayi** Tillyard, 1925

*Hydrobiosis lindsayi* Tillyard, 1925, *Rec. Cant. Mus.* 2: 277.

Holotype ♂ (C.M.) —“Chatham Is. 25 Jan. 1924, C. Lindsay”. Poor condition, one pair of wings on a micro-slide marked holotype, ♂ genitalia has been destroyed.

McFarlane (1951b) synonymised *H. lindsayi* with *H. umbripennis* McL. However, when this paper was almost completed, Mr. McFarlane kindly wrote urgently to advise that some more-recent Chatham Islands specimens, just examined by him, are distinct from *H. umbripennis*, and the species *lindsayi* is valid.

Genus SYNCHOREMA Tillyard, 1924

**Synchorema zygoneura** Tillyard, 1924

*Synchorema zygoneura* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 297.

*Synchorema zelandica* Mosely, 1953, *Trichoptera Australia & N.Z.* : 464. *syn. n.*

Holotype ♂ (E.D.) —“Mt. Arthur 4500ft. 23.12.21, A. Philpott”. Specimen in poor condition with one forewing and one hindwing missing, abdomen now in alcohol.

Allotype ♀ (E.D.) —“Arthurs Pass, N.Z. 19.1.20” (R. J. Tillyard holograph). Tillyard (1924) recorded the altitude, “2800ft.”. This specimen is a male, so is recognised and labelled as a paratype ♂ by the present author.



McFarlane (1964) has pointed out that the figure given by Tillyard (1924) for the male genitalia of *S. zygoneura* is not of this species, and he has figured both species involved, *zygoneura* and *tillyardi* McFarlane, 1964. Mosely & Kimmins (1953) had previously figured the ♂ genitalia of the species *S. zelandica* Mosely, 1953, which was based on a unique holotype collected at Queenstown on 14.12.1919 by Tillyard. Another specimen of *Synchorema*, taken at Queenstown by Tillyard on the same date, has now been recognised in the Cawthron Institute collection. The ♂ genitalia of this last specimen and of the holotype of *S. zygoneura* have now been prepared, compared, and found to be conspecific. They are definitely of the species figured as *S. zelandica* by Mosely & Kimmins (1953) and consequently it is considered that *zelandica* is a synonym of *zygoneura*.

The ventral surface of the aedeagus, in this species, is slightly more chitinised than the remainder and develops as two apical lobes on each side of a ventral median excision (see Mosely & Kimmins, 1953, McFarlane, 1964). It seems that, in the specimen figured by Mosely & Kimmins (1953), this ventral surface may have peeled ventrally at the apex, giving rise to the condition figured and named as "lower penis cover" by them.

#### Genus NEUROCHOREMA Tillyard, 1924

##### **Neurochorema confusum** (McLachlan, 1868)

(Fig. 11)

*Psilochorema confusum* McLachlan, 1868, *J. Linn. Soc. Lond. Zool.* 10: 210.

*Neurochorema decussatum* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 291.

Holotype ♂ (E.D.) —"Nelson, N.Z., 5.10.20, A. Philpott".

Allotype ♀ (E.D.) —"Nelson, N.Z., 20.10.20, A. Philpott".

5 Paratype ♂♂ — 5 ♂♂ (E.D.) previously determined as *Neurochorema decussatum* Till. in the Cawthron Institute collection, but without separate determination labels, were collected on "5.10.20", "2.10.20", "16.11.20", "5.10.20", "11.10.20", by A. Philpott at Nelson, which fits in with the recorded paratype data, ". . . taken October to November, 1920, by Mr. Philpott, at Nelson: . . ." These are considered to be the paratypes of *decussatum* and have now been so labelled. Three specimens are without abdomens.

McFarlane (1939, 1951a, 1964) has discussed this species and the genus in detail. He recorded (1964, p. 66) one character of the male forewing as "rc is not closed by a cross-vein", which is true for the *decussatum* holotype and other specimens (as figured by Tillyard, 1924), in what might be termed the primary position, that is at the spot where the cross-vein occurs in the female and as indicated (in error) for the male by Mosely & Kimmins (1953). However, amongst the *decussatum* paratypes there is one specimen in which R<sub>3</sub> combines with R<sub>4</sub> for a short distance, thus closing the radial cell, in one anterior wing, a condition which also occurs in the one remaining anterior wing of another paratype (Fig. 11) and in both anterior wings of one non-paratype specimen from the *decussatum* type locality; in a further paratype specimen the same condition occurs in the left anterior wing, while in the right wing R<sub>3</sub> and R<sub>4</sub> are only just apart at the same point. An aberrant and variable secondary closure of the radial cell in the anterior wing is thus shown to occur in this species.



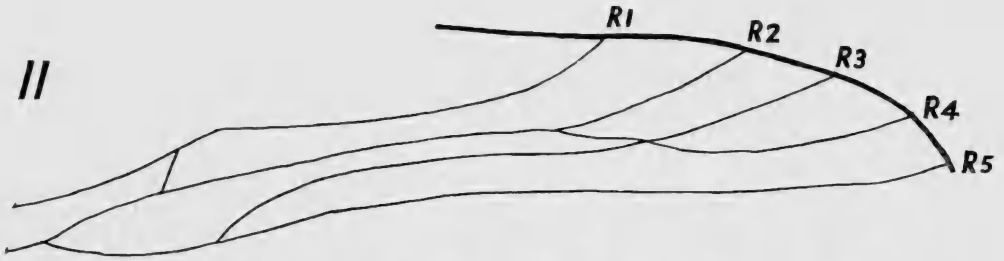


Fig. 11. *Neurochorema confusum* (McL.). Anterior wing of *N. decussatum* Tillyard, paratype, radial veins.

Genus HYDROCHOREMA Tillyard, 1924

**Hydrochorema crassicaudatum** Tillyard, 1924

*Hydrochorema crassicaudatum* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 293.

Holotype ♂ (E.D.)—"Nelson, N.Z., 15.12.21, A. Philpott".

Male genitalia are as figured and described by Mosely & Kimmins (1953) except for one character. *In situ*, the dorsal internal basal area of the inferior appendage, of the holotype and another specimen, appears as a moderately long lobe or branch rather than as a plate-like shelf as described and figured by Mosely & Kimmins (1953).

**Hydrochorema tenuicaudatum** Tillyard, 1924

*Hydrochorema tenuicaudatum* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 295.

Holotype ♀ (E.D.)—"Mt. Arthur, 4500ft., 23.2.21, A. Philpott".

Allotype ♂ (E.D.)—label as holotype. Abdomen missing, removed by Tillyard. Right anterior wing and apical portion of left, missing.

This species is recognisable from the description and figures by Tillyard (1924). The genus *Hydrochorema* has been characterised from *H. crassicaudatum* by Tillyard (1924), Mosely & Kimmins (1953). *H. tenuicaudatum* is congeneric with that species but it should be noted that in some specimens, both males and females including the holotype ♀, fork 1 of the anterior wing is short-stalked. Individually, these specimens would trace to *Neurochorema* in the key to genera of Hydrobiosinae in Mosely & Kimmins (1953), but the very short stalk and the long, almost parallel sides of the fork differentiate them from specimens of that genus.

Genus TIPHOBIOSIS Tillyard, 1924

**Tiphobiosis montana** Tillyard, 1924

*Tiphobiosis montana* Tillyard, 1924, *Trans. N.Z. Inst.* 55: 299.

Holotype ♂ (E.D.)—"Ben Lomond 15/12/19" (date is R. J. Tillyard holograph). Tillyard recorded "Ben Lomond, Queenstown, 4000ft. (15th December, 1919, R.J.T.), . . .". Abdomen missing, unfortunately recently mislaid in transit.

Allotype ♀ — recorded by Tillyard (1924), "Goulard Downs, 2000ft., Nelson Province (7th February, 1922, R.J.T.) . . .". This specimen was taken so far from the holotype locality that there is no guarantee that it was correctly associated with the male. Entomology Division, Nelson, have advised that this allotype specimen was accidentally destroyed some time ago.

Paratype ♂ ♂ — several recorded by Tillyard (1924) as taken at the same time as the holotype. Two specimens (E.D.), both without abdomens, mounted on one pin, with the same data as holotype. These are now recognised and labelled as paratypes by the present author. 2 ♂ ♂ (B.M.N.H.) with same data as holotype, previously recognised and labelled as paratypes by Mosely.

There is one micro-slide (E.D.) of the ♂ genitalia of this species labelled *Tiphobiosis montana* Till., but it has no locality data and cannot be matched with any specimen in the collection.

### **Tiphobiosis fulva** Tillyard, 1924

*Tiphobiosis fulva* Tillyard, 1924, *Trans. N.Z. Inst.* 55:300.

Holotype ♀ (E.D.) — "78a" (G. V. Hudson holograph). Hudson's register reads, "78a. Humboldt Range Lake Wakatipu March 2-03 near waterfall, 3600ft."

Tillyard (1924) recorded the specimen as a female, having seen the abdomen before it was lost. It has not yet been possible to associate this specimen with any others to further determine the species.

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